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ABSTRACT

This booklet uses hypothetical case examples to illustrate the definition, causal theories, and specific types of learning disabilities (LD). The cognitive and language performance of students with LD is compared to standard developmental milestones, and common approaches to the identification and education of children with LD are outlined. Research supporting or refuting the effectiveness of various medications and diets is summarized and general suggestions are provided for families attempting to cope with the stress of raising a child with LD. The outlook for the future is explored in a discussion considering whether learning disabilities can be outgrown or cured, a description of services available to adults with LD, and a summary of research being sponsored by the National Institute of Mental Health. The pamphlet concludes with a list of print resources and support groups relating to LD. (PB)

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Learning Disabilities

National Institute of Mental Health

Decade of the Brain

ED 370 328

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NATIONAL INSTITUTES OF HEALTH
National Institute of Mental Health

Message from the National Institute of Mental Health

Research conducted and supported by the National Institute of Mental Health brings hope to millions of people who suffer from mental illness and to their families and friends. In many years of work with animals as well as human subjects, researchers have advanced our understanding of the brain and vastly expanded the capability of mental health professionals to diagnose, treat, and prevent mental and brain disorders.

Now, in the 1990s, which the President and Congress have declared the "Decade of the Brain," we stand at the threshold of a new era in brain and behavioral sciences. Through research, we will learn even more about mental and brain disorders such as depression, bipolar disorder, schizophrenia, panic disorder, obsessive-compulsive disorder, and learning disabilities. And we will be able to use this knowledge to develop new therapies that can help more people overcome mental illness.

The National Institute of Mental Health is part of the National Institutes of Health (NIH), the Federal Government's primary agency for biomedical and behavioral research. NIH is a component of the U.S. Department of Health and Human Services.

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Learning Disabilities

Imagine having important needs and ideas to communicate, but being unable to express them. Perhaps feeling bombarded by sights and sounds, unable to focus your attention. Or trying to read or add but not being able to make sense of the letters or numbers.

You may not need to imagine. You may be the parent or teacher of a child experiencing academic problems, or have someone in your family diagnosed as learning disabled. Or possibly as a child you were told you had a reading problem called dyslexia or some other learning handicap.

Although different from person to person, these difficulties make up the common daily experiences of many learning disabled children, adolescents, and adults. A person with a learning disability may experience a cycle of academic failure and lowered self-esteem. Having these handicaps--or living with someone who has them--can bring overwhelming frustration.

But the prospects are hopeful. It is important to remember that a person with a learning disability *can learn*. The disability usually only affects certain limited areas of a child's development. In fact, rarely are learning disabilities severe enough to impair a person's potential to live a happy, normal life.

This booklet is provided by the National Institute of Mental Health (NIMH), the Federal agency that supports research nationwide on the brain, mental illnesses, and mental health. Scientists supported by NIMH are dedicated to understanding the workings and interrelationships of the various regions of the brain, and to finding preventions and treatments to overcome brain dysfunctions that handicap people in school, work, and play.

The booklet provides up-to-date information on learning disabilities and the role of NIMH-sponsored research in discovering underlying causes and effective treatments. It describes treatment options, strategies for coping, and sources of information and support. Among these sources are doctors, special education teachers, and mental health professionals who can help identify learning disabilities and recommend the right combination of medical, psychosocial, and educational treatment.

In this booklet, you'll also read the stories of Susan, Wallace, and Dennis, three people who have learning disabilities. Although each had a rough start, with help they learned to cope with their handicaps. You'll see their early frustrations, their steps toward getting help, and their hopes for the future.

The stories of Susan, Wallace, and Dennis are representative of people with learning disabilities, but the characters are not real. Of course, people with learning disabilities are not all alike, so these stories may not fit any particular individual.

Understanding the Problem

Susan

At age 14, Susan still tends to be quiet. Ever since she was a child, she was so withdrawn that people sometimes forgot she was there. She seemed to drift into a world of her own. When she did talk, she often called objects by the wrong names. She had few friends and mostly played with dolls or her little sister. In school, Susan hated reading and math because none of the letters, numbers or "+" and "-" signs made any sense. She felt awful about herself. She'd been told--and was convinced--that she was retarded.

Wallace

Wallace has lived 46 years, and still has trouble understanding what people say. Even as a boy, many words sounded alike. His father patiently said things over and over. But whenever his mother was drunk, she flew into a rage and spanked him for not listening. Wallace's speech also came out funny. He had such problems saying words that in school his teacher sometimes couldn't understand him. When classmates called him a "dummy," his fists just seemed to take over.

Dennis

Dennis is 23 years old and still seems to have too much energy. But he had always been an overactive boy, sometimes jumping on the sofa for hours until he collapsed with exhaustion. In grade school, he never sat still. He interrupted lessons. But he was a friendly, well-meaning kid, so adults didn't get too angry. His academic problems became evident in third grade, when his teacher realized that Dennis could only recognize a few words and wrote like a first grader. She recommended that Dennis repeat third grade, to give him time to "catch up." After another full year, his behavior was still out of control, and his reading and writing had not improved.

What is a learning disability?

Unlike other disabilities, such as paralysis or blindness, a learning disability (LD) is a hidden handicap. A learning disability doesn't disfigure or leave visible signs that would invite others to be understanding or offer support. A woman once blurted to Wallace, "You seem so intelligent--you don't *look* handicapped!"

LD is a disorder that affects people's ability to either interpret what they see and hear or to link information from different parts of the brain. These limitations can show up in many ways--as specific difficulties with spoken and written language, coordination, self-control, or attention. Such difficulties extend to schoolwork and can impede learning to read or write, or to do math.

Learning disabilities can be lifelong conditions that, in some cases, affect many parts of a person's life: school or work, daily routines, family life, and sometimes even friendships and play. In some people, many overlapping learning disabilities may be apparent. Other people may have a single, isolated learning problem that has little impact on other areas of their lives.

What are the types of learning disabilities?

"Learning disability" is not a diagnosis in the same sense as "chickenpox" or "mumps." Chickenpox and mumps imply a single, known cause with a predictable set of symptoms. Rather, LD is a broad term that covers a pool of possible causes, symptoms, treatments, and outcomes. Partly because learning disabilities can show up in so many forms, it is difficult to diagnose or to pinpoint the causes. And no one knows of a pill or remedy that will cure them.

Not all learning problems are necessarily learning disabilities. Many children are simply slower in developing certain skills. Because children show natural differences in their rate of development, sometimes what seems to be a learning disability may simply be a delay in maturation. To be diagnosed as a learning disability, specific criteria must be met.

The criteria and characteristics for diagnosing learning disabilities appear in a reference book called the DSM (short for the *Diagnostic and Statistical Manual of Mental Disorders*). The DSM diagnosis is commonly used when applying for health insurance coverage of diagnostic and treatment services.

Learning disabilities can be divided into three broad categories:

- Developmental speech and language disorders
- Academic skills disorders
- "Other," a catch-all that includes certain coordination disorders and learning handicaps not covered by the other terms

Each of these categories includes a number of more specific disorders.

Because children do show natural differences in their rate of development, not all learning problems are learning disabilities.

Developmental speech and language disorders

Speech and language problems are often the earliest indicators of a learning disability. People with developmental speech and language disorders have difficulty producing speech sounds, using spoken language to communicate, or understanding what other people say. Depending on the problem, the specific diagnosis may be:

- Developmental articulation disorder
- Developmental expressive language disorder
- Developmental receptive language disorder

Developmental articulation disorder. Children with this disorder may have trouble controlling their rate of speech. Or they may lag behind playmates in learning to make speech sounds. For example, Wallace at age 6 still said "wabbit" instead of "rabbit" and "thwim" for "swim." Developmental articulation disorders are common. They appear in at least 10 percent of children younger than age 8. Fortunately,

articulation disorders can often be outgrown or successfully treated with speech therapy.

Developmental expressive language disorder. Some children with language impairments have problems expressing themselves in speech. Their disorder is called, therefore, a developmental *expressive* language disorder. Susan, who often calls objects by the wrong names, has an expressive language disorder. Of course, an expressive language disorder can take other forms. A 4-year-old who speaks only in two-word phrases and a 6-year-old who can't answer simple questions– also have an expressive language disability.

Some people have trouble understanding certain aspects of speech.

Developmental receptive language disorder. Some people have trouble understanding certain aspects of speech. It's as if their brains are set to a different frequency and the reception is poor. There's the toddler who doesn't respond to his name, a preschooler who hands you a bell when you asked for a ball, or the worker who consistently can't follow simple directions. Their hearing is fine, but they can't make sense of certain sounds, words, or sentences they hear. They may even seem inattentive. These people have a *receptive* language disorder. Because using and understanding speech are strongly related, many people with receptive language disorders also have an expressive language disability.

Of course, in preschoolers, some misuse of sounds, words, or grammar is a normal part of learning to speak. It's only when these problems persist that there is any cause for concern.

Academic skills disorders

Students with academic skills disorders are often years behind their classmates in developing reading, writing, or arithmetic skills. The diagnoses in this category include:

- Developmental reading disorder
- Developmental writing disorder
- Developmental arithmetic disorder

Developmental reading disorder. This type of disorder, also known as dyslexia, is quite widespread. In fact, reading disabilities affect 2 to 8 percent of elementary school children.

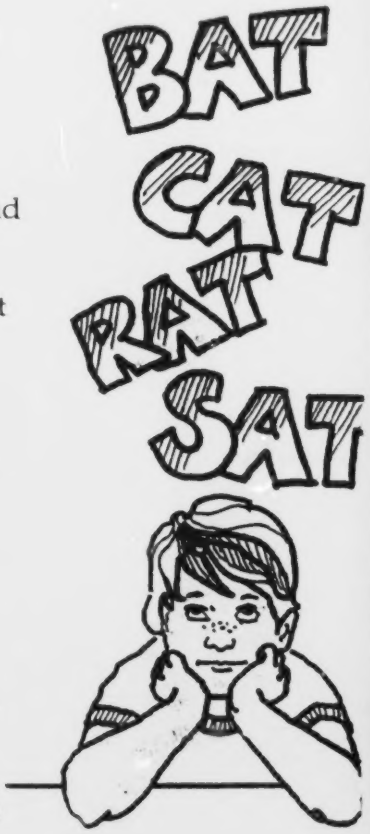
When you think of what is involved in the "three R's"--reading, 'riting, and 'rithmetic-- it's astounding that most of us do learn them. Consider that to read, you must simultaneously:

- Focus attention on the printed marks and control eye movements across the page
- Recognize the sounds associated with letters
- Understand words and grammar
- Build ideas and images
- Compare new ideas to what you already know
- Store ideas in memory

Such mental juggling requires a rich, intact network of nerve cells that connect the brain's centers of vision, language, and memory.

A person can have problems in any of the tasks involved in reading. However, scientists found that a significant number of people with dyslexia share an inability to distinguish or separate the sounds in spoken words. Dennis, for example, can't identify the word "bat" by sounding out the individual letters, b-a-t. Other children with dyslexia may have trouble with rhyming games, such as rhyming "cat" with "bat." Yet scientists have found these skills fundamental to learning to read. Fortunately, remedial reading specialists have developed techniques that can help many children with dyslexia acquire these skills.

Children with dyslexia may have trouble with rhyming games, such as rhyming "cat" with "bat."



However, there is more to reading than recognizing words. If the brain is unable to form images or relate new ideas to those stored in memory, the reader can't understand or remember the new concepts. So other types of reading disabilities can appear in the upper grades when the focus of reading shifts from word identification to comprehension.

Developmental writing disorder. Writing, too, involves several brain areas and functions. The brain networks for vocabulary,

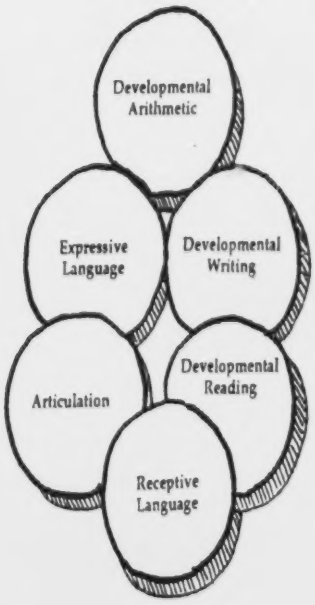
grammar, hand movement, and memory must all be in good working order. So a developmental writing disorder may result from problems in any of these areas. For example, Dennis, who was unable to distinguish the sequence of sounds in a word, had problems with spelling. A child with a writing disability, particularly an expressive language disorder, might be unable to compose complete, grammatical sentences.

Developmental arithmetic disorder. If you doubt that arithmetic is a complex process, think of the steps you take to solve this simple problem:

$$25 \div 3 = ?$$

Arithmetic involves recognizing numbers and symbols, memorizing facts such as the multiplication table, aligning numbers, and understanding abstract concepts like place value and fractions. Any of these may be difficult for children with developmental arithmetic disorders. Problems with numbers or basic concepts are likely to show up early. Disabilities that appear in the later grades are more often tied to problems in reasoning.

Because developmental skills build on each other, a person may have more than one learning disability.



Many aspects of speaking, listening, reading, writing, and arithmetic overlap and build on the same brain capabilities. So it's not surprising that people can be diagnosed as having more than one area of learning disability. For example, the ability to understand language underlies learning to speak. Therefore, any disorder that hinders the ability to understand language will also interfere with the development of speech, which in turn hinders learning to read and write. A single gap in the brain's operation can disrupt many types of activity.

"Other" learning disabilities

The DSM also lists additional categories, such as "motor skills disorders" and "specific developmental disorders not otherwise specified." These diagnoses include delays in acquiring language, academic, and motor skills that can affect

the ability to learn, but do not meet the criteria for a specific learning disability. Also included are coordination disorders that can lead to poor penmanship, as well as certain spelling and memory disorders.

Attention disorders

Nearly 4 million school-age children have learning disabilities. Of these, at least 20 percent have a type of disorder that leaves them unable to focus their attention.

Nearly 4 million school-age children have learning disabilities.

Some children and adults who have attention disorders appear to daydream excessively. And once you get their attention, they're often easily distracted. Susan, for example, tends to mentally drift off into a world of her own. Children like Susan may have a number of learning difficulties. If, like Susan, they are quiet and don't cause problems, their problems may go unnoticed. They may be passed along from grade to grade, without getting the special assistance they need.

In a large proportion of affected children--mostly boys--the attention deficit is accompanied by hyperactivity. Dennis is an example of a person with attention deficit hyperactivity disorder--ADHD. Like young Dennis, who jumped on the sofa to exhaustion, hyperactive children can't sit still. They act impulsively, running into traffic or toppling desks. They blurt out answers and interrupt. In games, they can't wait their turn. These children's problems are usually hard to miss. Because of their constant motion and explosive energy, hyperactive children often get into trouble with parents, teachers, and peers.

Like young Dennis, who jumped on the sofa to exhaustion, hyperactive children can't sit still.

By adolescence, physical hyperactivity usually subsides into fidgeting and restlessness. But the problems with attention and concentration often continue into adulthood. At work, adults with ADHD often have trouble organizing tasks or completing their work. They don't seem to listen to or follow directions. Their work may be messy and appear careless.

Attention disorders, with or without hyperactivity, are not considered learning disabilities in themselves. However, because attention problems can seriously interfere with school performance, they often accompany academic skills disorders.

What causes learning disabilities?

Understandably, one of the first questions parents ask when they learn their child has a learning disorder is *"Why? What went wrong?"*

Mental health professionals stress that since no one knows what causes learning disabilities, it doesn't help parents to look backward to search for possible reasons. There are too many possibilities to pin down the cause of the disability with certainty. It is far more important for the family to move forward in finding ways to get the right help.

Scientists, however, do need to study causes in an effort to identify ways to prevent learning disabilities.

A leading theory is that learning disabilities stem from subtle disturbances in brain structures and functions.

Once, scientists thought that all learning disabilities were caused by a single neurological problem. But research supported by NIMH has helped us see that the causes are more diverse and complex. New evidence seems to show that most learning disabilities do not stem from a single, specific area of the brain, but from difficulties in bringing together information from various brain regions.

Today, a leading theory is that learning disabilities stem from subtle disturbances in brain structures and functions. Some scientists believe that, in many cases, the disturbance begins before birth.

Errors in fetal brain development

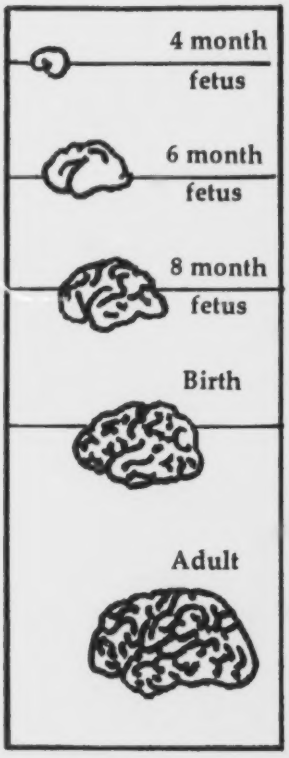
Throughout pregnancy, the fetal brain develops from a few all-purpose cells into a complex organ made of billions of specialized, interconnected nerve cells called neurons. During this amazing evolution, things can go wrong that may alter how the neurons form or interconnect.

In the early stages of pregnancy, the brain stem forms. It controls basic life functions such as breathing and digestion. Later, a deep ridge divides the cerebrum--the thinking part of the brain--into two halves, a right and left hemisphere. Finally, the areas involved with processing sight, sound, and other senses develop, as well as the areas associated with attention, thinking, and emotion.

As new cells form, they move into place to create various brain structures. Nerve cells rapidly grow to form networks with other parts of the brain. These networks are what allow information to be shared among various regions of the brain.

Throughout pregnancy, this brain development is vulnerable to disruptions. If the disruption occurs early, the fetus may die, or the infant may be born with widespread disabilities and possibly mental retardation. If the disruption occurs later, when the cells are becoming specialized and moving into place, it may leave errors in the cell makeup, location, or connections. Some scientists believe that these errors may later show up as learning disorders.

By birth, all the basic structures of the brain are present.



Brain Development

Other factors that affect brain development

Through experiments with animals, scientists at NIMH and other research facilities are tracking clues to determine what disrupts brain development. By studying the normal processes of brain development, scientists can better understand what can go wrong. Some of these studies are examining how genes, substance abuse, pregnancy problems, and toxins may affect the developing brain.

Genetic factors. The fact that learning disabilities tend to run in families indicates that there may be a genetic link. For example, children who lack some of the skills needed for reading, such as hearing the separate sounds of words, are likely to have a parent with a related problem. However, a parent's learning disability may take a slightly different form in the child. A parent who has a

writing disorder may have a child with an expressive language disorder. For this reason, it seems unlikely that specific learning disorders are inherited directly. Possibly, what is inherited is a subtle brain dysfunction that can in turn lead to a learning disability.

There may be an alternative explanation for why LD might seem to run in families. Some learning difficulties may actually stem from the family environment. For example, parents who have expressive language disorders might talk less to their children, or the language they use may be distorted. In such cases, the child lacks a good model for acquiring language and therefore, may seem to be learning disabled.

It seems unlikely that specific learning disorders are inherited directly.

Tobacco, alcohol, and other drug use. Many drugs taken by the mother pass directly to the fetus. Research shows that a mother's use of cigarettes, alcohol, or other drugs during pregnancy may have damaging effects on the unborn child. Therefore, to prevent potential harm to developing babies, the U.S. Public Health Service supports efforts to make people aware of the possible dangers of smoking, drinking, and using drugs.

Scientists have found that mothers who smoke during pregnancy may be more likely to bear smaller babies. This is a concern because small newborns, usually those weighing less than 5 pounds, tend to be at risk for a variety of problems, including learning disorders.

Alcohol also may be dangerous to the fetus' developing brain. It appears that alcohol may distort the developing neurons. Heavy alcohol use during pregnancy has been linked to fetal alcohol syndrome, a condition that can lead to low birth weight, intellectual impairment, hyperactivity, and certain physical defects. Any alcohol use during pregnancy, however, may influence the child's development and lead to problems with learning, attention, memory, or problem solving. Because scientists have not yet identified "safe" levels, alcohol should be used cautiously by women who are pregnant or who may soon become pregnant.

Drugs such as cocaine--especially in its smokable form known as crack--seem to affect the normal development of brain receptors. These brain cell parts help to transmit incoming signals from our skin, eyes, and ears, and help regulate our physical response to the environment. Because children with certain learning disabilities have difficulty understanding speech sounds or letters, some researchers believe that learning disabilities, as well as ADHD, may be related to faulty receptors. Current research points to drug abuse as a possible cause of receptor damage.

Problems during pregnancy or delivery. Other possible causes of learning disabilities involve complications during pregnancy. In some cases, the mother's immune system reacts to the fetus and attacks it as if it were an infection. This type of disruption seems to cause newly formed brain cells to settle in the wrong part of the brain. Or during delivery, the umbilical cord may become twisted and temporarily cut off oxygen to the fetus. This, too, can impair brain functions and lead to LD.

By studying the normal processes of brain development, scientists can better understand what can go wrong.

Toxins in the child's environment. New brain cells and neural networks continue to be produced for a year or so after the child is born. These cells are vulnerable to certain disruptions, also.

Researchers are looking into environmental toxins that may lead to learning disabilities, possibly by disrupting childhood brain development or brain processes. Cadmium and lead, both prevalent in the environment, are becoming a leading focus of neurological research. Cadmium, used in making some steel products, can get into the soil, then into the foods we eat. Lead was once common in paint and gasoline, and is still present in some water pipes. A study of animals sponsored by the National Institutes of Health showed a connection between exposure to lead and learning difficulties. In the study, rats exposed to lead experienced changes in their brainwaves, slowing their ability to learn. The learning problems lasted for weeks, long after the rats were no longer exposed to lead.

In addition, there is growing evidence that learning problems may develop in children with cancer who had been treated with chemotherapy or radiation at an early age. This seems particularly true of children with brain tumors who received radiation to the skull.

Are learning disabilities related to differences in the brain?

In comparing people with and without learning disabilities, scientists have observed certain differences in the structure and functioning of the brain. For example, new research indicates that there may be variations in the brain structure called the planum temporale, a language-related area found in both sides of the brain. In people with dyslexia, the two structures were found to be equal in size. In people who are not dyslexic, however, the left planum temporale was noticeably larger. Some scientists believe reading problems may be related to such differences.

New research indicates that there may be variations in the brain structure called the planum temporale.

With more research, scientists hope to learn precisely how differences in the structures and processes of the brain contribute to learning disabilities, and how these differences might be treated or prevented.

Getting Help

Susan

Susan was promoted to the sixth grade but still couldn't do basic math. So, her mother brought her to a private clinic for testing. The clinician observed that Susan had trouble associating symbols with their meaning, and this was holding back her language, reading, and math development. Susan called objects by the wrong words and she could not associate sounds with letters or recognize math symbols. However, an IQ of 128 meant that Susan was quite bright. In addition to developing an Individualized Education Plan, the clinician recommended that Susan receive counseling for her low self-esteem and depression.

Wallace

In the early 1960s, at the request of his ninth grade teacher, Wallace was examined by a doctor to see why he didn't speak or listen well. The doctor tested his vocal cords, vision, and hearing. They were all fine. The teacher concluded that Wallace must have "brain damage," so not much could be done. Wallace kept failing in school and was suspended several times for fighting. He finally dropped out after tenth grade. He spent the next 25 years working as a janitor. Because LD frequently went undiagnosed at the time when Wallace was young, the needed help was not available to him.

Dennis

In fifth grade, Dennis' teacher sent him to the school psychologist for testing. Dennis was diagnosed as having developmental reading and developmental writing disorders. He was also identified as having an attention disorder with hyperactivity. He was placed in an all-day special education program, where he could work on his particular deficits and get individual attention. His family doctor prescribed the medication Ritalin to reduce his hyperactivity and distractibility. Along with working to improve his reading, the special education teacher helped him improve his listening skills. Since his handwriting was still poor, he learned to type homework and reports on a computer. At age 19, Dennis graduated from high school and was accepted by a college that gives special assistance to students with learning disabilities.

How are learning disabilities first identified?

The first step in solving any problem is realizing there is one. Wallace, sadly, was a product of his time, when learning disabilities were more of a mystery and often went unrecognized. Today, professionals would know how to help Wallace. Dennis and Susan were able to get help because someone saw the problem and referred them for help.

When a baby is born, the parents eagerly wait for the baby's first step, first word, a myriad of other "firsts." During routine checkups, the pediatrician, too, watches for more subtle signs of development. The parents and doctor are watching for the child to achieve developmental milestones. The developmental milestones chart (see chart, page 18) lists a few of these markers and the ages and grades that they typically appear.

The classroom teacher may be the first to notice a child's persistent difficulties in reading, writing, or arithmetic.

Parents are usually the first to notice obvious delays in their child reaching early milestones. The pediatrician may observe more subtle signs of minor neurological damage, such as a lack of coordination. But the classroom teacher, in fact, may be the first to notice the child's persistent difficulties in reading, writing, or arithmetic. As school tasks become more complex, a child with a learning disability may have problems mentally juggling more information.

The learning problems of children who are quiet and polite in school may go unnoticed. Children with above average intelligence, who manage to maintain passing grades despite their disability, are even less likely to be identified. Children with hyperactivity, on the other hand, will be identified quickly by their impulsive behavior and excessive movement. Hyperactivity usually begins before age 4 but may not be recognized until the child enters school.

What should parents, doctors, and teachers do if critical developmental milestones haven't appeared by the usual age? Sometimes it's best to allow a little more time, simply for the brain to mature a bit. But if a milestone is already long delayed, if there's a history of learning disabilities in the family, or if there are several delayed skills, the child should be professionally evaluated as soon as possible. An educator or a doctor who

treats children can suggest where to go for help.

How are learning disabilities formally diagnosed?

By law, learning disability is defined as a significant gap between a person's intelligence and the skills the person has achieved at each age. This means that a severely retarded 10-year-old who speaks like a 6-year-old probably doesn't have a language or speech disability. He has mastered language up to the limits of his intelligence. On the other hand, a fifth grader with an IQ of 100 who can't write a simple sentence probably does have LD.

Learning disorders may be *informally flagged* by observing significant delays in the child's skill development. A 2-year delay in the primary grades is usually considered significant. For older students, such a delay is not as debilitating, so learning disabilities aren't usually suspected unless there is more than a 2-year delay. *Actual diagnosis* of learning disabilities, however, is made using standardized tests that compare the child's level of ability to what is considered normal development for a person of that age and intelligence.

Standardized tests compare the child's level of ability to what is considered normal development for a person of that age and intelligence.

For example, as late as fifth grade, Susan couldn't add two numbers, even though she rarely missed school and was good in other subjects. Her mother took her to a clinician, who observed Susan's behavior and administered standardized math and intelligence tests. The test results showed that Susan's math skills were several years behind, given her mental capacity for learning. Once other possible causes like lack of motivation and vision problems were ruled out, Susan's math problem was formally diagnosed as a specific learning disability.

Test outcomes depend not only on the child's actual abilities, but on the reliability of the test and the child's ability to pay attention and understand the questions. Children like Dennis, with poor attention or hyperactivity, may score several points below their true level of ability. Testing a child in an isolated room can sometimes help the child concentrate and score higher.

Each type of LD is diagnosed in slightly different ways. To diagnose speech and language disorders, a speech therapist tests the child's pronunciation, vocabulary, and grammar and compares them to the developmental abilities seen

Developmental Milestones

Age/ grade	Receptive language	Articulation and expressive language	Reading	Writing	Arithmetic
age <1	Cries at loud noises Turns when name is spoken	Babbles; imitates voice patterns and sounds			
age 1	Shakes head to simple questions, "Want milk?" On request, points to own nose, eye, mouth	Imitates words Says two-word phrases, like "More cookie"			
age 2	Follows one-part instructions like "Put the ball in the cup" or "Show me the hat."	Uses sentences of three to four words Uses nouns, verbs, and pronouns			
age 3	Follows two-part instructions like "Put the ball in the cup and give them to me."	Articulates m,n,f,h,p,t,d,w Uses *no* or *not* in sentences			
age 4	Understands if/then	Forms questions Articulates k,b,g,r,s,sh			Counts objects; can discuss "more" and "less"
age 5 gr. K	Follows three-part instructions	Tells if two words rhyme Uses five- to six-word sentences	Names letters in upper and lower case	Holds and uses a pencil Writes own name	Reads, writes numbers to 15 Names shapes ● ■ ▲
age 6 gr. 1	Understands opposites, like little and big, fast and slow, alike and different	Articulates t,v,l,th (as in *th*in) Uses *will* and *-ing* verbs	Knows sounds of letters Recognizes common words by sight	Prints on the line, using letters of appropriate size Writes sentences	Counts by twos Does simple addition and subtraction
age 7 gr. 2	Understands about 6,000-8,000 words	Pronounces z, dg (as in bri*dge*), and th (as in *th*is)	Finds facts in a story Reads blends, like ***st, br, cl*** & digraphs ***th, ch, sh***	Begins writing in script	Counts by tens and fives Adds and subtracts with "carrying tens"
age 8 gr. 3			Reads for meaning Identifies stories, poems, plays	Writes short paragraphs Has good spelling skills	Reads and writes Roman numerals Does simple multiplication
age 9 gr. 4			Skims for information	Uses varied sentence types in writing	Masters multiplication and division
age 10 gr. 5			Reads factual material to learn new information	Outlines and takes notes	Uses fractions and graphs

This chart shows the age and grade in school when certain abilities typically develop.

in most children that age. A psychologist tests the child's intelligence. A physician checks for any ear infections, and an audiologist may be consulted to rule out auditory problems. If the problem involves articulation, a doctor examines the child's vocal cords and throat.

In the case of academic skills disorders, academic development in reading, writing, and math is evaluated using standardized tests. In addition, vision and hearing are tested to be sure the student can see words clearly and can hear adequately. The specialist also checks if the child has missed much school. It's important to rule out these other possible factors. After all, treatment for a learning disability is very different from the remedy for poor vision or missing school.

ADHD is diagnosed by checking for the long-term presence of specific behaviors, such as considerable fidgeting, losing things, interrupting, and talking excessively. Other signs include an inability to remain seated, stay on task, or take turns. A diagnosis of ADHD is made only if the child shows such behaviors substantially more than other children of the same age.

If the school fails to notice a learning delay, parents can request an outside evaluation. In Susan's case, her mother chose to bring Susan to a clinic for testing. She then brought documentation of the disability back to the school. After confirming the diagnosis, the public school was obligated to provide the kind of instructional program that Susan needed.

Some parents may find it helpful to ask someone they like and trust to go with them to school meetings.

Parents should stay abreast of each step of the school's evaluation. Parents also need to know that they may appeal the school's decision if they disagree with the findings of the diagnostic team. And like Susan's mother, who brought Susan to a clinic, parents always have the option of getting a second opinion.

Some parents feel alone and confused when talking to learning specialists. Such parents may find it helpful to ask someone they like and trust to go with them to school meetings. The person may be the child's clinician or caseworker, or even a neighbor. It can help to have someone along who

knows the child and can help understand the child's test scores or learning problems.

What are the education options?

Although obtaining a diagnosis is important, even more important is creating a plan for getting the right help. Because LD can affect the child and family in so many ways, help may be needed on a variety of fronts: educational, medical, emotional, and practical.

In most ways, children with learning disabilities are no different from children without these disabilities. At school, they eat together and share sports, games, and after-school activities. But since children with learning disabilities do have specific learning needs, most public schools provide special programs.

Schools typically provide special education programs either in a separate all-day classroom or as a special education class that the student attends for several hours each week. Some parents hire trained tutors to work with their child after school. If the problems are severe, some parents choose to place their child in a special school for the learning disabled.

Sometimes parents hire trained tutors to work with their child after school.

If parents choose to get help outside the public schools, they should select a learning specialist carefully. The specialist should be able to explain things in terms that the parents can understand. Whenever possible, the specialist should have professional certification and experience with the learner's specific age group and type of disability. Some of the support groups listed at the end of this booklet can provide references to qualified special education programs.

Planning a special education program begins with systematically identifying what the student can and cannot do. The specialist looks for patterns in the child's gaps. For example, if the child fails to hear the separate sounds in words, are there other sound discrimination problems? If there's a problem with handwriting, are there other motor delays? Are there any consistent problems with memory?

Special education teachers also identify the types of tasks the child can do and the senses that function well. By using the senses that are intact and bypassing the disabilities, many children can develop needed skills. These strengths offer alternative ways the child *can* learn.

After assessing the child's strengths and weaknesses, the special education teacher designs an Individualized Educational Program (IEP). The IEP outlines the specific skills the child needs to develop as well as appropriate learning activities that build on the child's strengths. Many effective learning activities engage several skills and senses. For example, in learning to spell and recognize words, a student may be asked to see, say, write, and spell each new word. The student may also write the words in sand, which engages the sense of touch. Many experts believe that the more senses children use in learning a skill, the more likely they are to retain it.

The student may also write the words in sand, which engages the sense of touch.

An individualized, skill-based approach--like the approach used by speech and language therapists--often succeeds in helping where regular classroom instruction fails. Therapy for speech and language disorders focuses on providing a stimulating but structured environment for hearing and practicing language patterns. For example, the therapist may help a child who has an articulation disorder to produce specific speech sounds. During an engaging activity, the therapist may talk about the toys, then encourage the child to use the same sounds or words. In addition, the child may watch the therapist make the sound, feel the vibration in the therapist's throat, then practice making the sounds before a mirror.

Researchers are also investigating nonstandard teaching methods. Some create artificial learning conditions that may help the brain receive information in nonstandard ways. For example, in some language disorders, the brain seems abnormally slow to process verbal information. Scientists are testing whether computers that talk can help teach children to process spoken sounds more quickly. The computer starts slowly, pronouncing one sound at a time. As

the child gets better at recognizing the sounds and hearing them as words, the sounds are gradually speeded up to a normal rate of speech.

Is medication available?

For nearly six decades, many children with attention disorders have benefited from being treated with medication. Three drugs, Ritalin (methylphenidate), Dexedrine (dextro-amphetamine), and Cylert (pemoline), have been used successfully. Although these drugs are stimulants in the same category as "speed" and "diet pills," they seldom make children "high" or more jittery. Rather, they temporarily improve children's attention and ability to focus. They also help children control their impulsiveness and other hyperactive behaviors.

The effects of medication are most dramatic in children with ADHD. Shortly after taking the medication, they become more able to focus their attention. They become more ready to learn. Studies by NIMH scientists and other researchers have shown that at least 90 percent of hyperactive children can be helped by either Ritalin or Dexedrine. If one medication does not help a hyperactive child to calm down and pay attention in school, the other medication might.

The drugs are effective for 3 to 4 hours and move out of the body within 12 hours. The child's doctor or a psychiatrist works closely with the family and child to carefully adjust the dosage and medication schedule for the best effect. Typically, the child takes the medication so that the drug is active during peak school hours, such as when reading and math are taught.

In the past few years, researchers have tested these drugs on adults who have attention disorders. Just as in children, the results show that low doses of these medications can help reduce distractibility and impulsivity in adults. Use of these medications has made it possible for many severely disordered adults to organize their lives, hold jobs, and care for themselves.

In trying to do everything possible to help their children, many parents have been quick to try new treatments. Most of these treatments sound scientific and reasonable, but a few are pure quackery. Many are developed by reputable doctors or specialists--but when tested scientifically, cannot be proven to help. Following are types of therapy that have *not* proven effective in treating the majority of children with learning disabilities or attention disorders:

There are no medicines for speech, language, or academic disabilities.

- Megavitamins
- Colored lenses
- Special diets
- Sugar-free diets
- Body stimulation or manipulation

Although scientists hope that brain research will lead to new medical interventions and drugs, at present there are no medicines for speech, language, or academic disabilities.

How do families learn to cope?

The effects of learning disabilities can ripple outward from the disabled child or adult to family, friends, and peers at school or work.

Children with LD often absorb what others thoughtlessly say about them. They may define themselves in light of their disabilities, as "behind," "slow," or "different."

Sometimes they don't know *how* they're different, but they know how awful they feel. Their tension or shame can lead them to act out in various ways--from withdrawal to belligerence. Like Wallace, they may get into fights. They may stop trying to learn and achieve and eventually drop out of school. Or, like Susan, they may become isolated and depressed.

Children with learning disabilities and attention disorders may have trouble making friends with peers. For children with ADHD, this may be due to their impulsive, hostile, or withdrawn behavior. Some children with delays may be more comfortable with younger children who play at their level. Social problems may also

be a product of their disability. Some people with LD seem unable to interpret tone of voice or facial expressions. Misunderstanding the situation, they act inappropriately, turning people away.

Without professional help, the situation can spiral out of control. The more that children or teenagers fail, the more they may act out their frustration and damage their self-esteem. The more they act out, the more trouble and punishment it brings, further lowering their self-esteem. Wallace, who lashed out when teased about his poor pronunciation and was repeatedly suspended from school, shows how harmful this cycle can be.

Having a child with a learning disability may also be an emotional burden for the family. Parents often sweep through a range of emotions: denial, guilt, blame, frustration, anger, and despair. Brothers and sisters may be annoyed or embarrassed by their sibling, or jealous of all the attention the child with LD gets.

Counseling can be very helpful to people with LD and their families. Counseling can help affected children, teenagers, and adults develop greater self-control and a more positive attitude toward their own abilities. Talking with a counselor or psychologist also allows family members to air their feelings as well as get support and reassurance.

Support groups can be a source of information, practical suggestions, and mutual understanding.

Many parents find that joining a support group also makes a difference. Support groups can be a source of information, practical suggestions, and mutual understanding. Self-help books written by educators and mental health professionals can also be helpful. A number of references and support groups are listed at the end of this booklet.

Behavior modification also seems to help many children with hyperactivity and LD. In behavior modification, children receive immediate, tangible rewards when they act appropriately. Receiving an immediate reward can help children learn to control their own actions, both at home and in class. A school or private counselor can explain behavior modification and help parents and teachers set up appropriate rewards for the child.

Parents and teachers can find ways to help children build on their strengths and work around their disabilities.

Parents and teachers can help by structuring tasks and environments for the child in ways that allow the child to succeed. They can find ways to help children build on their strengths and work around their disabilities. This may mean deliberately making eye contact before speaking to a child with an attention disorder. For a teenager with a language problem, it may mean providing pictures and diagrams for performing a task. For students like Dennis with handwriting or spelling problems, a solution may be to provide a word processor and software that checks spelling. A counselor or school psychologist can help identify practical solutions that make it easier for the child and family to cope day by day.

Every child needs to grow up feeling competent and loved. When children have learning disabilities, parents may need to work harder at developing their children's self-esteem and relationship-building skills. But self-esteem and good relationships are as worth developing as any academic skill.

Sustaining Hope

Susan

Susan is now in ninth grade and enjoys learning. She no longer believes she's retarded, and her use of words has improved. Susan has become a talented craftsperson and loves making clothes and furniture for her sister's dolls. Although she's still in a special education program, she is making slow but steady progress in reading and math.

Wallace

Over the years, Wallace found he liked tinkering with cars and singing in the church choir. At church, he met a woman who knew about learning disabilites. She told him he could get help through his county social services office. Since then, Wallace has been working with a speech therapist, learning to articulate and notice differences in speech sounds. When he complains that he's too old to learn, his therapist reminds him, "It's never too late to work your good brain!" His state vocational rehabilitation office recently referred him to a job-training program. Today, at age 46, Wallace is starting night school to become an auto mechanic. He likes it because it's a hands-on program where he can learn by doing.

Dennis

Dennis is now age 23. As he walks into the college job placement office, he smiles and shakes hands confidently. After shuffling through a messy stack of papers, he finally hands his counselor a neatly typed resume. Although Dennis jiggles his foot and interrupts occasionally, he's clearly enthusiastic. He explains that because tape-recorded books and lectures got him through college, he'd like to sell electronics. Dennis says he'll also be getting married next year. He and his fiancee are concerned that their children also will have LD. "But we'll just have to watch and get help early—a lot earlier than I did!"

Can learning disabilities be outgrown or cured?

Even though most people don't outgrow their brain dysfunction, people do learn to adapt and live fulfilling lives. Dennis, Susan, and Wallace made a life for themselves--not by being cured, but by developing their personal strengths. Like Dennis' tape-recorded books and lectures, or Wallace's hands-on auto mechanics class, they found alternative ways to learn. And like Susan's crafts or Wallace's singing, they found ways to enjoy their other talents.

Even though a learning disability doesn't disappear, given the right types of educational experiences, people have a remarkable ability to learn. The brain's flexibility to learn new skills is probably greatest in young children and may diminish somewhat after puberty. This is why early intervention is so important. Nevertheless, we retain the ability to learn throughout our lives.

In many cases, an adult with dyslexia can learn to read.

Even though learning disabilities can't be cured, there is still cause for hope. Because certain learning problems reflect delayed development, many children do eventually catch up. Of the speech and language disorders, children who have an articulation or an expressive language disorder are the least likely to have long-term problems. Despite initial delays, most children do learn to speak.

For people with dyslexia, the outlook is mixed. But an appropriate remedial reading program can help learners make great strides.

With age, and appropriate help from parents and clinicians, children with ADHD become better able to suppress their hyperactivity and to channel it into more socially acceptable behaviors. As with Dennis, the problem may take less disruptive forms, such as fidgeting.

Can an adult be helped? For example, can an adult with dyslexia still learn to read? In many cases, the answer is *yes*. It may not come as easily as for a child. It may take more time and more repetition, and it may even take more diverse teaching methods. But we know more about reading and about adult learning than ever before. We know that adults have a wealth of life experience to build on as they learn. And because adults choose to

learn, they do so with a determination that most children don't have. A variety of literacy and adult education programs sponsored by libraries, public schools, and community colleges are available to help adults develop skills in reading, writing, and math. Some of these programs, as well as private and nonprofit tutoring and learning centers, provide appropriate programs for adults with LD.

What aid does the Government offer?

As of 1981, people with learning disabilities came under the protection of laws originally designed to protect the rights of people with mobility handicaps. More recent Federal laws specifically guarantee equal opportunity and raise the level of services to people with disabilities. Once a learning disability is identified, children are guaranteed a free public education specifically designed around their individual needs. Adolescents with disabilities can receive practical assistance and extra training to help make the transition to jobs and independent living. Adults have access to job training and technology that open new doors of opportunity.

Increased services, equal opportunity

The Individuals with Disabilities Education Act of 1990 assures a public education to school-aged children with diagnosed learning disabilities. Under this act, public schools are required to design and implement an Individualized Educational Program tailored to each child's specific needs. The 1991 Individuals with Disabilities Education Act extended services to developmentally delayed children down to age 5. This law makes it possible for young children to receive help even before they begin school.

Another law, the Americans with Disabilities Act of 1990, guarantees equal employment opportunity for people with learning disabilities and protects disabled workers against job discrimination. Employers may not consider the learning disability when selecting among job applicants. Employers must also make "reasonable accommodations" to help workers who have

handicaps do their job. Such accommodations may include shifting job responsibilities, modifying equipment, or adjusting work schedules.

By law, publicly funded colleges and universities must also remove barriers that keep out disabled students. As a result, many colleges now recruit and work with students with learning disabilities to make it possible for them to attend. Depending on the student's areas of difficulty, this help may include providing recorded books and lectures, providing an isolated area to take tests, or allowing a student to tape record rather than write reports. Students with learning disabilities can arrange to take college entrance exams orally or in isolated rooms free from distraction. Many colleges are creating special programs to specifically accommodate these students.

Programs like these made it possible for Dennis to attend and succeed in college. The HEATH Resource Center, sponsored by the American Council on Education, assists students with learning disabilities to identify appropriate colleges and universities. Information on the HEATH center and related organizations appears at the end of this brochure.

Public agency support

Effective service agencies are also in place to assist people of all ages. Each state department of education can help parents identify the requirements and the process for getting special education services for their child. Other agencies serve disabled infants and preschool children. Still others offer mental health and counseling services. The National Information Center for Children and Youth can provide referrals to appropriate local resources and state agencies.

Counselors at each state department of vocational rehabilitation serve the employment needs of adolescents and adults with learning disabilities. They can refer adults to free or subsidized health care, counseling, and high school equivalence (GED) programs. They can assist in arranging for job training that sidesteps the

disability. For example, a vocational counselor helped Wallace identify his aptitude for car repair. To work around Wallace's language problems, the counselor helped locate a job-training program that teaches through demonstrations and active practice rather than lectures.

State departments of vocational rehabilitation can also assist in finding special equipment that can make it possible for disabled individuals to receive training, retain a job, or live on their own. For example, because Dennis couldn't read the electronics manuals in his new job, a vocational rehabilitation counselor helped him locate and purchase a special computer that reads books aloud.

Finally, state-run protection and advocacy agencies and client assistance programs serve to protect these rights. As experts on the laws, they offer legal assistance, as well as information about local health, housing, and social services.

What hope does research offer?

Sophisticated brain imaging technology is now making it possible to directly observe the brain at work and to detect subtle malfunctions that could never be seen before. Other techniques allow scientists to study the points of contact among brain cells and the ways signals are transmitted from cell to cell.

With this array of technology, NIMH is conducting research to identify which parts of the brain are used during certain activities, such as reading. For example, researchers are comparing the brain processes of people with and without dyslexia as they read. Research of this kind may eventually associate portions of the brain with different reading problems.

Clinical research also continues to amass data on the causes of learning disorders. NIMH grantees at Yale are examining the brain structures of children with different combinations of learning disabilities. Such research will help identify differences in the nervous system of children with these related disorders. Eventually, scientists will

know, for example, whether children who have both dyslexia and an attention disorder will benefit from the same treatment as dyslexic children without an attention disorder.

Studies of identical and fraternal twins are also being conducted. Identical twins have the same genetic makeup, while fraternal twins do not. By studying if learning disabilities are more likely to be shared by identical twins than fraternal twins, researchers hope to determine whether these disorders are influenced more by genetic or by environmental factors. One such study is being conducted by scientists funded by the National Institute of Child Health and Human Development. So far, the research indicates that genes may, in fact, influence the ability to sound out words.

By studying if learning disabilities are more likely to be shared by identical twins than fraternal twins, researchers hope to determine whether these disorders are influenced more by genetic or by environmental factors.

Animal studies also are adding to our knowledge of learning disabilities in humans. Animal subjects make it possible to study some of the possible causes of LD in ways that can't be studied in humans. One NIMH grantee is researching the effects of barbiturates and other drugs that are sometimes prescribed during pregnancy. Another researcher discovered through animal studies that certain prenatal viruses can affect future learning. Research of this kind may someday pinpoint prenatal problems that can trigger specific disabilities and tell us how they can be prevented.

Animal research also allows the safety and effectiveness of experimental new drugs to be tested long before they can be tried on humans. One NIH-sponsored team is studying dogs to learn how new stimulant drugs that are similar to Ritalin act on the brain. Another is using mice to test a chemical that may counter memory loss.

This accumulation of data sets the stage for applied research. In the coming years, NIMH-sponsored research will focus on identifying the conditions that are required for learning and the best combination of instructional approaches for each child.

Piece by piece, using a myriad of research techniques and technologies, scientists are beginning

to solve the puzzle. As research deepens our understanding, we approach a future where we can prevent certain brain and mental disorders, make valid diagnoses, and treat each effectively. This is the hope, mission, and vision of the National Institute of Mental Health.

What are sources of information and support?

Several publications, organizations, and support groups exist to help individuals, teachers, and families to understand and cope with learning disabilities. The following resources provide a good starting point for gaining insight, practical solutions, and support. Further information can be found at libraries and book stores.

Publications

Books for children and teens with learning disabilities

Fisher, G., and Cummings, R., *The Survival Guide for Kids with LD*. Minneapolis: Free Spirit Publishing, 1990. (Also available on cassette)

Gehret, J. *Learning Disabilities and the Don't-Give-Up-Kid*. Fairport, NY: Verbal Images Press, 1990.

Janover, C. *Josh: A Boy with Dyslexia*. Burlington, VT: Waterfront Books, 1988.

Landau, E. *Dyslexia*. New York: Franklin Watts Publishing Co., 1991.

Marek, M. *Different, Not Dumb*. New York: Franklin Watts Publishing Co., 1985.

Levine, M. *Keeping A Head in School: A Student's Book about Learning Abilities and Learning Disorders*. Cambridge, MA: Educators Publishing Services, Inc., 1990.

Books for adults with learning disabilities

Adelman, P., and Wren, C. *Learning Disabilities, Graduate School, and Careers: The Student's Perspective.* Lake Forest, IL: Learning Opportunities Program, Barat College, 1990.

Cordoni, B. *Living with a Learning Disability.* Carbondale, IL: Southern Illinois University Press, 1987.

Kravets, M., and Wax, I. *The K&W Guide: Colleges and the Learning Disabled Student.* New York: Harper Collins Publishers, 1992.

Magnum, C., and Strichard, S., eds. *Colleges with Programs for Students with Learning Disabilities.* Princeton, NJ: Petersons Guides, 1992.

Books for parents

Greene, L. *Learning Disabilities and Your Child: A Survival Handbook.* New York: Fawcett Columbine, 1987.

Novick, B., and Arnold, M. *Why Is My Child Having Trouble in School?* New York: Villard Books, 1991.

Silver, L. *The Misunderstood Child: A Guide for Parents of Children with Learning Disabilities. 2d ed.* Blue Ridge Summit, PA: Tab Books, 1992.

Silver, L. *Dr. Silver's Advice to Parents on Attention-Deficit Hyperactivity Disorder.* Washington, DC: American Psychiatric Press, 1993.

Vail, P. *Smart Kids with School Problems.* New York: EP Dutton, 1987.

Weiss, E. *Mothers Talk About Learning Disabilities.* New York: Prentice Hall Press, 1989.

Books and pamphlets for teachers and specialists

Adelman, P., and Wren, C. *Learning Disabilities, Graduate School, and Careers.* Lake Forest, Learning Opportunities Program, Barat College, 1990.

Silver, L. *ADHD: Attention Deficit-Hyperactivity Disorder, Booklet for Teachers.* Summit, NJ: CIBA-GEIGY, 1989.

Smith, S. *Success Against the Odds: Strategies and Insights from the Learning Disabled.* Los Angeles: Jeremy Tarcher, Inc., 1991.

Wender, P. *The Hyperactive Child, Adolescent, and Adult. Attention Disorder through the Lifespan.* New York: Oxford University Press, 1987.

Related pamphlets available from NIH

Facts About Dyslexia
National Institute of Child Health and
Human Development
Building 31, Room 2A32
9000 Rockville Pike
Bethesda, MD 20892
(301) 496-5133

Developmental Speech and Language Disorders--Hope through Research
National Institute on Deafness and
Other Communicative Disorders
P.O. Box 37777
Washington, DC 20013
(800) 241-1044

Support Groups and Organizations

American Speech-Language-Hearing Association
10801 Rockville Pike
Rockville, MD 20852
(800) 638-8255

Provides information on speech and language disorders, as well as referrals to certified speech-language therapists.

Attention Deficit Information Network
475 Hillside Avenue
Needham, MA 02194
(617) 455-9895

Provides up-to-date information on current research, regional meetings. Offers aid in finding solutions to practical problems faced by adults and children with an attention disorder.

Candlelighters Childhood Cancer Foundation
7910 Woodmont Avenue, Suite 460
Bethesda, MD 20814
(800) 366-2223

Provides information and support for children treated for cancer who later experience learning disabilities.

Center for Mental Health Services
Office of Consumer, Family, and Public Information
5600 Fishers Lane, Room 15-81
Rockville, MD 20857
(301) 443-2792

This new national center, a component of the U.S. Public Health Service, provides a range of information on mental health, treatment, and support services.

Children with Attention Deficit Disorders
(CHADD)
499 NW 70th Avenue, Suite 308
Plantation, FL 33317
(305) 587-3700

Runs support groups and publishes two newsletters concerning attention disorders for parents and professionals.

Council for Exceptional Children
11920 Association Drive
Reston, VA 22091
(703) 620-3660

Provides publications for educators. Can also provide referral to ERIC Clearinghouse for Handicapped and Gifted Children.

Federation of Families for Children's
Mental Health
1021 Prince Street
Alexandria, VA 22314
(703) 684-7710

Provides information, support, and referrals through federation chapters throughout the country. This national parent-run organization focuses on the needs of children with broad mental health problems.

HEATH Resource Center
American Council on Education
1 Dupont Circle, Suite 800
Washington, DC 20036
(800) 544-3284

A national clearinghouse on post-high school education for people with disabilities.

Learning Disabilities Association of America
4156 Library Road
Pittsburgh, PA 15234
(412) 341-8077

Provides information and referral to state chapters, parent resources, and local support groups. Publishes news briefs and a professional journal.

Library of Congress
National Library Service for the Blind
and Physically Handicapped
1291 Taylor Street, NW
Washington, DC 20542
(202) 707-5100

***Publishes Talking Books and Reading Disabilities**, a factsheet outlining eligibility requirements for borrowing talking books.*

National Alliance for the Mentally Ill
Children and Adolescents Network (NAMI CAN)
2101 Wilson Boulevard, Suite 302
Arlington, VA 22201
(800) 950-NAMI

Provides support to families through personal contact and support meetings. Provides education regarding coping strategies; reading material; and information about what works--and what doesn't.

National Association of Private Schools for Exceptional Children
1522 K Street, NW
Suite 1032
Washington, DC 20005
(202) 408-3338

Provides referrals to private special education programs.

National Center for Learning Disabilities
381 Park Avenue South, Suite 1420
New York, NY 10016
(212) 687-7211

Provides referrals and resources. Publishes "Their World" magazine describing true stories on ways children and adults cope with LD.

National Information Center for Children and Youth with Disabilities
P.O. Box 1492
Washington, DC 20013
(800) 999-5599

Publishes newsletter, arranges workshops. Advises parents on the laws entitling children with disabilities to special education and other services.

Orton Dyslexia Society
Chester Building, Suite 382
8600 LaSalle Road
Baltimore, MD 21286-2044
(410) 296-0232

Answers individual questions on reading disability. Provides information and referrals to local resources.

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To arrange for special college entrance testing for LD adults, contact:

ACT Special Testing	(319) 337-1332
SAT Scholastic Aptitude Test	(609) 771-7137
GED	(202) 939-9490

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